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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,156	03/08/2007	Domenico Romiti	9526-91 (189371)	2908
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EXAMINER				
LEO, LEONARD R				
ART UNIT		PAPER NUMBER		
3785				
NOTIFICATION DATE		DELIVERY MODE		
11/01/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip@akerman.com

### Office Action Summary

**Application No.**

10/596,156

**Applicant(s)**

ROMITI, DOMENICO

**Examiner**

LEONARD R. LEO

**Art Unit**

3785

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 23, 2011 has been entered.

Claims 1-6 and 8-13 are pending.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandolfi et al in view of Nagano.

Gandolfi et al (Title and Abstract) discloses a tube bundle heat exchanger for treating corrosive fluids comprising at least one tube composed of titanium (page 18, first paragraph), but does not disclose a hot-drawn or welded layer of zirconium.

Nagano (Abstract) discloses a protective coating for titanium comprising zirconium for the purpose of preventing corrosion.

Since Gandolfi et al and Nagano are both from the same field of endeavor and/or analogous art, the purpose disclosed by Nagano would have been recognized in the pertinent art of Gandolfi et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Gandolfi et al a zirconium coating on the titanium tubes for the purpose of preventing corrosion as recognized by Nagano.

To hot-draw or weld the layer of zirconium as taught by Nagano onto the titanium tube of Gandolfi et al is considered to be an obvious design choice, producing no new and/or unexpected results. Furthermore, it would have been obvious to one of ordinary skill in the art to use a known technique to improve similar devices in the same way. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) As disclosed in the specification (page 6 and 12), applicant states the specific bonding above is a preference and sets forth no criticality in bonding zirconium to titanium. One of ordinary skill in the art would employ any known technique (as evidenced by Takayasu or Schutz et al) to effectively bond the tube and layer in the device of the combination of Gandolfi et al and Nagano.

Regarding claim 2, it would have been obvious to one of ordinary skill in the art to employ the zirconium material on either the inside or outside of the titanium tube depending on which surface requires corrosion protection with respect to the intended working fluids. Furthermore, it would have been obvious to one of ordinary skill in the art to try - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). In this instance, the zirconium material can be located in one of two possibilities: the outside or the inside of the titanium tube.

Regarding claim 3, the specific titanium tube and zirconium material thicknesses are considered to be an obvious design choice, producing no new and/or unexpected results. One of ordinary skill in the art would employ any desired tube and coating material thicknesses to achieve a desired heat exchange, pressure resistance, wear ability, etc. Furthermore, Gandolfi et al (page 18) discloses tube thickness ranging from 1 to 20 mm depending on the tube material, and coating material ranging from 0.5 to 3 mm depending on the tube material.

Regarding claims 4-6 and 13, Gandolfi et al (page 7, line 24 to 8, line 22 with respect to Menicatti et al) discloses a portion of the tubes may be corrosion protected where the working or process fluid is at its maximum aggressiveness. One of ordinary skill in the art would employ any portion (i.e. percentage) of the tube with the protective layer to achieve a desired amount of corrosion resistance. As disclosed (pages 5 and 11), applicants do not set forth any criticality in the specific portion (i.e. percentage) of the tube with the protective layer and reminds the ordinary skilled artisan that the values are preferable. Furthermore, applicants disclose (page 12) the protective layer may completely coat the entire inner surfaces (i.e. length) of the tube.

Regarding claims 9-10, Gandolfi et al (Figure 3 and page 24, lines 2-6) discloses a carbon or stainless steel tube plate 22 with a titanium layer 23. The specific titanium layer thickness is considered to be an obvious design choice, producing no new and/or unexpected results. One of ordinary skill in the art would employ any desired layer thickness to achieve a desired corrosion resistance, wear ability, etc.

Regarding claims 11-12, the recitations of “for the decomposition of ammonium carbamate in an urea production plant” and “for the condensation of ammonia and carbon dioxide into ammonium carbamate in an urea production plant” are considered to be statements

of intended use, even if claimed, does not merit patentable weight unless the body of the claim refers back to, is defined by, or otherwise draws life and breadth from such intended use. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

### ***Response to Arguments***

Applicants' arguments have been fully considered but they are not persuasive.

Applicants' remarks with respect to the rejection in view of Gandolfi et al and Nagano are mistaken. Gandolfi et al discloses two embodiments: Figure 2 (page 11, second paragraph) disclosing a bimetallic tube 4 composed of stainless steel and zirconium and Figure 3 (page 11, first paragraph) disclosing a tube 4 composed of titanium. Throughout prosecution, the Examiner has relied upon Gandolfi et al disclosing the embodiment of a tube composed of titanium. On the other hand, the secondary reference of Nagano is not relied upon to teach ***hot-drawn or welded*** zirconium with titanium. Nagano teaches employing a zirconium coating on titanium tubes for the purpose of preventing corrosion, which applicants do not traverse. The Examiner proceeds to state "To hot-draw or weld the layer of zirconium as taught by Nagano onto the titanium tube of Gandolfi et al is considered to be an obvious design choice, producing no new and/or unexpected results." Applicants do not traverse the fact that one of ordinary skill in the art would employ known techniques to effectively bond the zirconium and titanium together. The bonding in itself is not the novelty of the invention, since applicants disclose the specific bonding is a preference using per se known methods.

The Examiner maintains the position that the terms “layer” and “tube” are synonymous, especially when Gandolfi et al discloses a coating “layer or tube” having the same and overlapping thicknesses as the instant invention. The device of the combination of Gandolfi et al and Nagano structurally meets the instant invention. The zirconium material as taught by Nagano coated on the titanium tube of Gandolfi et al is read as a “layer” or as a “tube.” In the final product of Gandolfi et al and Nagano, once the zirconium material is coated on the titanium tube, the zirconium material forms a “tube.” If the Examiner were convinced by applicants’ remarks, then a rejection under 35 U.S.C. 112, first paragraph, would be proper for lacking an adequate written description of the invention. In applicants’ specification, the term “tube” does not occur with zirconium, only the term “layer” is associated with zirconium.

Regarding applicants’ remarks with respect to claim 13, as applied to rejection of claim 6, Gandolfi et al (page 7, line 24 to 8, line 22 with respect to Menicatti et al) discloses a portion of the tubes may be corrosion protected where the working or process fluid is at its maximum aggressiveness. Thus, in the device of the combination of Gandolfi et al and Nagano, the inner zirconium layer would be located in a portion (or percentage) of the tube where corrosion protection is needed.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicants’ disclosure. Takayasu and Schutz et al disclose welding titanium and zirconium together is well known in the art.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Leonard R. Leo /  
PRIMARY EXAMINER  
ART UNIT 3785

October 26, 2011